

1 INTERCONNECTIONS FOR FLIP-CHIP USING LEAD-FREE SOLDERS
2 AND HAVING REACTION BARRIER LAYERS
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5 ABSTRACT OF THE INVENTION
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7 An interconnection structure suitable for flip-chip
8 attachment of microelectronic device chips to packages,
9 comprising a two, three or four layer ball-limiting
10 composition including an adhesion/reaction barrier
11 layer, and having a solder wettable layer reactive with
12 components of a tin-containing lead free solder, so
13 that the solderable layer can be totally consumed
14 during soldering, but a barrier layer remains after
15 being placed in contact with the lead free solder
16 during soldering. One or more lead-free solder balls is
17 selectively situated on the solder wetting layer, the
18 lead-free solder balls comprising tin as a predominant
19 component and one or more alloying components.